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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,840	09/25/2003	Douglas Jay Arent	295843-01US	9643
25764	7590	12/15/2005	EXAMINER	
FAEGRE & BENSON LLP PATENT DOCKETING 2200 WELLS FARGO CENTER MINNEAPOLIS, MN 55402			HITESHEW, FELISA CARLA	
			ART UNIT	PAPER NUMBER
			1722	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/671,840

Applicant(s)

ARENT ET AL

Examiner

Felisa C. Hiteshew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date see attached paper.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The PTOL 1449 has been received, reviewed and considered.

### ***Claim Rejections - 35 USC § 112***

1. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, line 15, the terminology "...M, R and R' are those defined in Claim 1 is being considered vague and indefinite. You do not need to restate claim dependency. Please correct.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumayer. et al.

Neumayer, et al teaches a MOCVD method for producing a bisamido azide of Ga, Al or In. These compounds contain labile amido leaving groups and an azide nitrogen delivering ligand for the growth of Al, Ga, and In (group III) nitride films. A compound useful for metal organic chemical vapor deposition to form metals, metal nitrides and metal alloys is the compound being of formula  $[(RR'N)_2M-N_3]_n$ , wherein R and R' are independently hydrogen, alkyl, alkyl amine, aryl, alkyl-substituted aryl, alkyl-substituted halide or together form a cycloalkyl; wherein M is Al, Ga or In; and wherein n is from 1 to about 6. For example, an amorphous GaN film with a 3.4 eV band gap was grown on (0001) sapphire with (1) at a precursor saturator temperature of 82°C, and a substrate temperature of 250°C. At a higher substrate temperature fko 580°C an epitaxial wurzitic (0001) oriented 0.7um GaN film with a measured band gap of 3.2 eV (see column 2, lines 26-68, respectively). A good representative example for an alkyl amine is a tertiary amine, such as ethy l(dimethyl amine ) (see column 3, lines 24-25). Preferably, both R and R' are methyl. Preferably, M is Ga. Preferably, n is 1. A typical compound of the present invention is synthesized by the reaction of the group III chlorides with the two equivalents of an appropriate amido lithium reagent to form the bis-substituted amido metal chloride then, the bis-substituted amide metal chloride is reacted with an excess of sodium azide to form a beamed metal azide. Subsequent

treatment of bisdimethylamidogallium chloride with sodium azide in dichloromethane and a catalytic amount of dibenzo-18-crown-6 afforded bis-dimethylamidogallium azide (1) in high yields, following evaporation to dryness and recrystallization in pentane. Generally, the heating is conducted at an elevated temperature in the range from about 250°C to about 1100°C (see column 3, lines 51-63; column 4, lines 41-68). A carrier gas such as hydrogen, nitrogen, argon, or helium is used to flow into a saturator where a bisamido metal azide is located (see column 5, lines 14-16).

The difference being that Neumayer, et al does not exactly teach all of the process limitation of the instant invention. However, in the absence of unobvious results, it would have been obvious to one of ordinary skill in the art to modify the process parameter limitation in order to ensure proper orientation. The motivation being that the process would be advantageous to develop safe and effective method of producing polycrystalline metal nitride films without the associated safety concerns.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill might reasonably infer from the teachings. In re Opprecht 12 USPQ 2d 1235, 1236 (CAFC 1989); In re Bode 193 USPQ 12; In re Lamberti 192 USPQ 278; In re Bozek 163 USPQ 545, 549 (CCPA 1969); In re Van Mater 144 USPQ 421; In re Jacoby 135 USPQ 317; In re LeGrice 133 USPQ 365; In re Preda 159 USPQ 342 (CCPA 1968).

Expected beneficial results are evidence of obviousness, just as unexpected beneficial results are evidence of unobviousness. In re Novak 16 USPQ 2d 2041 (Fed. Cir., BPAI 1989); In re Hoffman 194 USPQ 126 (CCPA 1977); In re Skoll 187 USPQ

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481 (CCPA 1975); In re Skoner 186 USPQ 80 (CCPA 1975); In re Garshon 152 USPQ 602 (CCPA 1967).

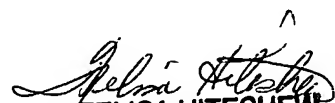
***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTOL-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felisa Hiteshew whose telephone number is (571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 3:00 PM, off first Friday and 5:30 AM. –2 PM on second Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith, can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system. see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866- 217-9197 (toll-free).

  
FELISA HITESHEW  
PRIMARY EXAMINER  
AU 1722